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Science and Technology for Tomorrow's Air and Space Force

Success Story

LARGE ROCKET TEST STAND REACTIVATED AT EDWARDS RESEARCH SITE

The Propulsion Directorate reactivated Test Stand 1-D, one of its largest and most historic rocket test stands at Edwards Air Force Base (AFB), California, during a ribbon-cutting ceremony in January 2003. The liquid oxygen and kerosene-based, 15-story test stand is considered state of the art and capable of testing rocket engines and components with millions of pounds of thrust.

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Accomplishment

With Test Stand 1-D's refurbishment, the directorate's Space and Missile Propulsion Division scientists, engineers, and technicians are ready to help validate innovative technologies for current and future rocket engines. Originally built as an Apollo-era F-1 rocket engine test facility, the directorate took Test Stand 1-D from a mothballed storage state in the dry desert climate and in less than 18 months, modernized it to increase national rocket engine test and research capabilities.

The $12 million modernization cost, which included state-of-the-art data acquisition and control systems, was much less than the estimated $500 million needed to build a new test stand from scratch. The directorate met or exceeded environmental standards for fuel tanks and plumbing as well as cooling waters for the rocket test stand.

Background

The test stand's capabilities fit into the overall Department of Defense (DoD) National Rocket Propulsion program called integrated high payoff rocket propulsion technology (IHPRPT). The directorate's Space and Missile Propulsion Division coordinates the program that encompasses liquid rocket engine, solid rocket motor, and advanced propulsion technologies. IHPRPT's future large liquid rocket propulsion demonstrations can now use the stand's massive thrust capabilities.

The program's DoD/National Aeronautical and Space Administration/and industry partnership is working toward a national doubling of propulsion capability. That means more thrust, fewer parts, improved manufacturing, and innovative materials application.

The stand is part of the directorate's nearly $3 billion worth of test facilities at Edwards AFB. Nearly every American rocket can trace its research and testing to the Edwards facilities, which have given the nation rocket propulsion research, development, and test capabilities for over 50 years.

Propulsion
Emerging Technologies

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (03-PR-16)